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ARIZONA DEPARTMENT OF ADMINISTRATION

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August 17, 2015

The Honorable Diane Douglas
Superintendent of Public Instruction
Arizona Department of Education
1535 West Jefferson Street
Phoenix, AZ 85007

The Honorable Diane Douglas:

In response to the *Amended* Project Investment Justification (PIJ) for the “**AELAS Organization Entity Management**” project, my staff has reviewed your proposal to add additional FY 2015 Automation Project Fund (APF) funding and extend the project completion date.

The original PIJ implied that Arizona Education and Learning Accountability System (AELAS) funding was available from the FY 2014 Automation Projects Fund in the amount of \$450.0 thousand for the total one-year life cycle cost of the project. The prior amended PIJ implies funding is available from the FY 2015 Automation Projects Fund in the amount of \$600.0 thousand for the total two-year life cycle cost for the project of \$1,050.0 thousand.

The current Amended PIJ implies funding is available from the FY 2015 Automation Projects Fund in the amount of \$147.6 thousand for the total two-year life cycle cost for the project of \$1,197.6 thousand.

The PIJ was originally Approved with Conditions by the Arizona Strategic Enterprise Technology Office on October 3, 2013, as follows:

1. ADE may proceed with the design, development and implementation of the proposed solution, however should there be significant differences in the scope of work, costs, implementation schedule, or proposed technology, ADE must amend the PIJ to reflect the changes and submit it to ASET for review and approval prior to further expenditure of funds

The Honorable Diane Douglas

August 17, 2015

Page 2

This is notification of the Arizona Strategic Enterprise Technology Office's recommendation to the Information Technology Authorization Committee (ITAC) for **Approval with Conditions** of the *Amended* technology project as follows:

1. Given the required independent third-party reviews of project progress, ADE will make the results of the reviews available to ITAC as of the end of each calendar quarter.
2. Prior to any acquisition other than Professional & Outside Services identified in the approved PIJ, ADE must provide detailed information, including pricing, quantity, and description, regarding the proposed technology or services and obtain approval from ADOA-ASET, and ITAC if required, before proceeding with the planned expenditure.

The ITAC is scheduled to meet on August 26, 2015 to review this project.

Should the ITAC approve the project, you may then proceed to secure additional approvals as required from the Joint Legislative Budget Committee, the Office of Strategic Planning and Budgeting, and the State Procurement Office.

Best Wishes,



Michael J. Lettman

Acting State CIO and Chief Information Security Officer
Arizona Strategic Enterprise Technology (ASET) Office

ec

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ASET# ED14009_A2

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PIJ Summary – ASET

Project Number: ED14009 A2

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Arizona Department of Education 1535 West Jefferson Street Phoenix, AZ 85007	Anish Verma 602.542.0839 Anish.Verma@azed.gov
<i>Project and Investment Justification Name</i>	<i>Date Submitted</i>
AELAS Organization Entity Management	September 25, 2013 – Original PIJ July 7, 2014 – Amended PIJ July 20, 2015 – Amended PIJ

Project Overview

Problem Description

The organizational structure of educational entities within Arizona, e.g. school districts and charter holders, is maintained within a relationship management system used by the Arizona Department of Education (ADE) called *Enterprise*. The initial design for *Enterprise* was defined over 10 years ago, to support the needs of the School Finance division within ADE. Over time, as new applications were introduced, replicated copies of the *Enterprise* database were made available to help meet the increasing demand for education organization data. ADE program areas have continued to add to and alter definitions of educational entity data elements within the *Enterprise* database for their own use. As a result, there are more than 12 copies of *Enterprise* currently in production within ADE, feeding 120+ applications requiring education organization-related data. The web-based front-end to the *Enterprise* application, which provides the user interface for managing this data, is accessible via *CommonLogon*, ADE's legacy identity and access management application. *CommonLogon* lacks the design required to provide role-based access control, allowing a user with 'edit' access rights to make changes to all segments of the *Enterprise* database, including those outside the scope of their own program area. Not only does this impact ADE's ability to ensure the security and quality of this data, but simply updating an existing data element often requires cumbersome communication and coordination between different ADE program areas, increasing the likelihood of omitting crucial stakeholders, who may later override or delete these modifications. Program areas within ADE have also created, manipulated, and enriched numerous copies of *Enterprise* data utilizing software such as Microsoft (MS) Excel, Word and Access. This scattered, duplicated data can neither be accounted for, nor traced, and the failure to synchronize changes between individual copies and the master version of *Enterprise* often leads to severe data integrity issues. As part of the set of core capabilities needed to drive initiatives such as the Arizona Education Learning and Accountability System (AELAS), there is a critical need for a centralized method for managing education organization data.

Solution

ADE is proposing to develop and implement a new Organization Entity Management System (OEMS). The OEMS application will serve as the foundation for providing the core entity, contact, and relationship capabilities needed to support the AELAS vision, while also preserving the ability of the School Finance division to perform the Agency's critical function of paying districts and charters. The proposed system has two (2) dependencies, including the Education Fidelity (Ed-FI) compliant Operational Data Store (ODS) architecture and the *ADE Connect* identity management and security system (IMS), both being implemented by the ED14006 SLDS-Arizona Education Data-driven Decision System (AzED³S) project. While the proposed

scope of work for this project will not eliminate the replicated copies of the *Enterprise* database, it will provide a single source of data for those replicated copies that will facilitate the eventual elimination of the 12+ copies of the *Enterprise* database currently in production.

Major Deliverables and Outcomes

ADE is proposing to utilize the MS Dynamics Customer Relationship Management (MDCRM) platform, which ADE acquired as part of an earlier effort, to create the centralized change management function needed for the OEMS. In addition to Professional and Outside Services, the PIJ includes a nominal cost for two (2) medium-size virtual machine web servers and two (2) medium-size virtual application servers to support the OEMS. The outcome of the project will be a fully functional, automated, workflow based, entity management system, which will pave the way to eventually sunset the *Enterprise* system and 12+ copies of its replicated database. Phase 1 of the proposed solution, in scope for this project, will be developed utilizing a multi-tiered architecture comprised of the following:

- *Change Management Gateway*, using MDCRM to provide the front-end interface, integrated with *ADEConnect* to provide role-based access for authenticated users.
- SQL Server 2012 database, utilizing the Ed-Fi data model and SQL Server Integration packages to feed data to the ODS being developed by AzED³S.
- SQL Server Integration packages, or Extract, Transform, and Load (ETL) scripts, to provide current database consumers with replicated copies of *Enterprise* data using the new ODS, until those systems can be refactored to leverage the capabilities provided by the OEMS.

Specific deliverables for Phase 1 include:

1. Map existing education organization data into the Ed-Fi data model.
2. Develop education organization data change management application using MDCRM.
3. Develop role-based permissions to enable finer-grained controls for data access.
4. Integrate the permissions with roles provided by *ADEConnect*.
5. Perform one time population of data.
6. Provide the capability to periodically extract data from the new system and re-create the current *Enterprise* database, to be replicated to downstream consumers.

In FY 2014, ADE completed the Phase 1 deliverables listed above with the exception of milestones 2, 5, and 6, which are still in progress and will be completed using remaining FY 2014 Automated Project Funds (APF) funding, and additional APF FY 2015 funding, if required.

While originally out of scope for this project, ADE expected to address additional deliverables as part of a future Phase 2. Utilizing additional FY 2015 APF funding, ADE is now proposing to complete the following deliverables:

1. *Identify Arizona Department of Education (ADE) program areas that utilize information stored within the Enterprise data system, including:*
 - a. *Role played by an organization, e.g., feeder sites, consortiums, charter holders, schools, districts, etc.*

- b. *Relationships between roles of an organization, e.g., a college or university may act as a charter sponsor, a public school may belong to a school district or charter district, etc.*
 - c. *Primary contacts for the organization based on its role, e.g., an organization may have different contacts if it acts as a college or university than when it acts as a charter sponsor.*
 - d. *Demographics, e.g., the billing, physical, and mailing address of an organization based on its role.*
2. *Identify ADE applications that use data stored within one of the 12+ copies of Enterprise.*
3. *Develop interfaces to consume data from the OEMS data system, including:*
 - a. *Develop web-based interfaces using web services from MDCRM to enable LEAs that currently receive funds from ADE to view and request changes for information pertaining to their individual organizations.*
 - b. *Develop MDCRM based intranet interface to enable ADE Program Areas to be able to view information on all organizations and apply changes to information pertaining to their individual organizations.*

While still considered to be out of scope for the amended PIJ at this time, ADE expects to address the following deliverables as part of a future APF FY 2016 funding request, in order to achieve the full benefit of the proposed OEMS:

1. *Establish a timeline for refactoring the applications to use the Phase 2 interfaces instead of accessing data directly from the replicated copies of the Enterprise database.*
2. *Sunset all identifiable copies of the Enterprise database.*

ADE is amending the project on 7/20/15 to add an additional \$147,653 of APF FY15 funding, and transferring \$35,000 in remaining Hardware funds into Professional & Outside Services as well to complete the following task that were not in the original scope of the project:

1. ***Add program codes to OEMS.***
2. ***Update data model.***
3. ***Create queues.***
4. ***Create workflow for change request.***
5. ***Create change request reports indicating the requested changes.***
6. ***Develop the exposed web service for the user interface (UI) to indicate the UI changes requested.***
7. ***Perform system and integration tests.***
8. ***Perform user acceptance tests.***
9. ***Deploy to production.***
10. ***Perform final data push from Legacy Enterprise to OEMS.***
11. ***Deploy enterprise sync to production.***

The above listed task are required for developing automated change requests, tracking change history and providing audit functionality. The project end date is also being extended to October 15, 2015 to complete the new functionality.

Benefits

The OEMS will facilitate the elimination of the 12+ copies of the *Enterprise* database currently in production, and provide a single source of truth for education organization data. The proposed system is expected to be able to help ADE:

- Be supportive of the Ed-Fi solution and common education data standards (CEDS) which provide consistent data definitions required to seamlessly share data among different systems and applications.
- Drive data accuracy by creating a *Change Management Gateway* to act as the single authoritative source to funnel in all changes to the OEMS, using a role-based access control (RBAC) mechanism.
- Eliminate the coordination and communication needed between program areas to create or modify data elements.
- Eliminate the need for creating complex workarounds to implement updates for keeping all the copies of *Enterprise* synchronized.
- Enable the elimination of many education organization data elements collected by the various program areas within ADE.
- Enable education organization data sharing in such a way as to minimize replication and errors.

ADE is proposing to use APF FY 2015 funding to complete additional work required to enable the elimination of 12+ copies of the Enterprise database currently in production.

Project Management

ADE contracted resources will manage the project, utilizing contracted Architects, Analysts, Developers and Quality Assurance resources to complete the project deliverables.

Enterprise Architecture

Compliant.

Original Summary of Proposed Costs

<i>All Figures in Thousands (\$000)</i>						
<i>Cost Description</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>Total</i>
Development Costs	450.0	0.0	0.0	0.0	0.0	450.0
Operational Costs	0.0	0.0	0.0	0.0	0.0	0.0
Total Project Costs	450.0	0.0	0.0	0.0	0.0	450.0

Prior Amended Summary of Proposed Costs

<i>All Figures in Thousands (\$000)</i>						
<i>Cost Description</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>Total</i>
Development Costs	450.0	600.0	0.0	0.0	0.0	1,050.0
Operational Costs	0.0	0.0	0.0	0.0	0.0	0.0
Total Project Costs	450.0	600.0	0.0	0.0	0.0	1,050.0

Current Amended Summary of Proposed Costs

<i>All Figures in Thousands (\$000)</i>						
<i>Cost Description</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>Total</i>
Development Costs	450.0	747.6	0.0	0.0	0.0	1,197.6
Operational Costs	0.0	0.0	0.0	0.0	0.0	0.0
Total Project Costs	450.0	747.6	0.0	0.0	0.0	1,197.6

Recommendation: Approval with Conditions

1. Given the required independent third-party reviews of project progress, ADE will make the results of the reviews available to ITAC as of the end of each calendar quarter.
2. Prior to any acquisition other than Professional & Outside Services identified in the approved PIJ, ADE must provide detailed information, including pricing, quantity, and description, regarding the proposed technology or services and obtain approval from ADOA-ASET, and ITAC if required, before proceeding with the planned expenditure.